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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of :  
GUDMUNDUR HJARTARSON et al. : Examiner: Andrew Chung Cheung Lee  
Serial No.: 09/810,938 : Group Art Unit: 2664  
Filed: March 16, 2001 :  
For: SYSTEM AND METHOD FOR :  
PROGRAMMABLE SPECTRUM :  
MANAGEMENT :

**APPEAL BRIEF**

James J. Merek  
Attorney for Appellants

MEREK, BLACKMON & VOORHEES, LLC  
673 South Washington Street  
Alexandria, Virginia 22314  
(703) 684-5633

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**I. REAL PARTY IN INTEREST**

The real party in interest is Ciena Corporation, the assignee of record of the subject patent application.

## **II. RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any prior or pending appeals, judicial proceedings or interferences which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

### **III. STATUS OF CLAIMS**

Claims 1 through 21 are currently pending and have been finally rejected.

Appellants hereby appeal the rejections of Claims 1 through 21.

#### **IV. STATUS OF AMENDMENTS**

No amendment was filed in the subject patent application subsequent to issuance of the Final Rejection on May 5, 2005. However, a Request for Reconsideration was filed by Appellants on July 5, 2005. No response has been received from the Examiner on Appellants' Request for Reconsideration.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

Appellants' invention, as recited in Claim 1, is directed to a line interface for coupling a twisted pair telephone line with a communications network. (See Specification, p. 3, lines 5 and 6 and Figure 3, reference numeral 60) The line interface comprises a broadband analog front end circuit (See Specification, p. 3, lines 30 to 33 and Figure 3, reference numeral 62) coupling the twisted pair telephone line (See Figure 3, reference numeral 12) with the line interface and a programmable filter (See Figure 3, reference numeral 66) coupled to receive an output signal from the broadband analog front end circuit and configured to filter frequency bands of the output signal into a plurality of separate, variable bandwidth transmission channels. (See Specification, p. 3, lines 5 to 10, p. 4, line 4 to p. 6, line 16 and Figures 4, 6D and 6E) The plurality of separate, variable bandwidth transmission channels are associated with the communications network and the frequency bands and the variable bandwidths are determined by programming the programmable filter. (See Specification, p. 3, lines 5 to 10 and p. 6, lines 5 to 25)

Appellants' invention, as recited in Claim 15, is directed to a method of providing a plurality of services (See Figure 4) over a twisted pair telephone line (See Figure 3, reference numeral 12), comprising the acts of: receiving a broadband analog signal from the twisted pair telephone line (See Specification, p. 4, lines 1 and 2; and, Figure 3); filtering the broadband analog signal using a programmable filter (See Figure 3, reference numeral 66) into a plurality of separate bands wherein the plurality of separate bands are determined by programming the filter to generate a plurality of variable bandwidth channels (See Figures 3, 4, 6D and 6E; and Specification, p. 4, line 3 to p. 6, line 25); and

transmitting the plurality of separate bands to a plurality of different service providers (See Specification p. 4, lines 26 to 29).

Appellants' invention, as recited in Claim 18, is directed to a line interface for coupling a twisted pair telephone line with a communications network. (See Specification, p. 3, lines 5 and 6 and Figure 3, reference numeral 60) The line interface includes a broadband analog front end circuit (See Specification, p. 3, lines 30 to 33 and Figure 3, reference numeral 62) coupling the twisted pair telephone line (See Figure 3, reference numeral 12) with the line interface and a programmable filter (See Figure 3, reference numeral 66) coupled to receive an output signal from the broadband analog front end circuit and configured to filter frequency bands of the output signal into a plurality of different transmission channels. (See Specification, p. 3, lines 5 to 10, p. 4, line 4 to p. 6, line 16 and Figures 4, 6D and 6E) The plurality of different transmission channels include a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth wherein the programmable filter can be programmed to adjust a band edge of either the first transmission channel or the second transmission channel to increase or decrease the first and second variable frequency bandwidths, respectively. (See Specification, p. 3, lines 5 to 10, p. 4, line 4 to p. 6, line 16 and Figures 4, 6D and 6E)

Appellants' invention, as recited in Claim 20, is directed to a method of providing a plurality of services (See Figure 4) over a twisted pair telephone line (See Figure 3, reference numeral 12). The method includes the steps of: receiving a broadband analog signal from the twisted pair telephone line (See Specification, p. 4, lines 1 and 2; and, Figure 3); filtering the broadband analog signal using a programmable filter (See Figure

3, reference numeral 66) into a plurality of separate frequency bands including a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth; programming the programmable filter to adjust a band edge of either the first transmission channel or the second transmission channel to increase or decrease the first and second variable frequency bandwidths, respectively (See Figures 3, 4, 6D and 6E; and Specification, p. 4, line 3 to p. 6, line 25); and, transmitting the first and second transmission channels to different service providers. (See Specification p. 4, lines 26 to 29).



**VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

The following grounds of rejection are to be reviewed in the subject appeal:

- (1) Whether Claims 18, 19, 20 and 21 fail to comply with the written description requirement of 35 U.S.C. 112, first paragraph;
- (2) Whether Claims 11, 13 and 14 fail to comply with 35 U.S.C. 112, second paragraph;
- (3) Whether Claims 1 through 11 and 14 through 21 are anticipated under 35 U.S.C. 102 (b) by U.S. Patent No. 6,055,268 ("Timm et al."); and,
- (4) Whether Claims 12 and 13 are obvious under 35 U.S.C. 103 based on the combination of Timm et al and U.S. Patent No. 6,546,090 ("Bremer et al.")

## **VII. ARGUMENT**

Appellants respectfully submit that Claims 18, 19, 20 and 21 fully comply with the written description requirement of 35 U.S.C. 112, first paragraph. Specifically, the Specification as originally filed including the Detailed Description of the Invention, the Claims and the drawings is more than sufficient to establish that the inventors possessed the invention at the time of filing of the subject patent application.

Appellants respectfully submit that Claims 11, 13 and 14 fully comply with 35 U.S.C. 112, second paragraph as Claim 11, line 2 recites “a POTS detector circuit” thereby providing ample antecedent basis for the phrase “POTS detector circuit” appearing in Claim 11, line 2, Claim 13, line 1 and Claim 14, line 1. Further, even if this Board finds that antecedent basis is lacking, Claims 11, 13 and 14 are definite as the scope of these claims is readily ascertainable by those skilled in the art.

Appellants respectfully submit that none of Claims 1 through 11 and 14 through 21 are anticipated by Timm et al as Timm et al fail to disclose expressly or inherently each and every element set forth in these claims. Accordingly, the Examiner’s rejection of Claims 1 through 11 and 14 through 21 cannot be sustained.

Appellant further submits that Claims 12 and 13 are not rendered obvious under 35 U.S.C. 103 by the combination of Timm et al and Bremer et al because the necessary teaching, suggestion or motivation to combine these references is lacking. Further, even if the unobvious combination of Timm et al and Bremer et al is made, the combination fails to teach or suggest Appellants’ invention. As such, the rejection of Claims 12 and 13 cannot be sustained.

**A. THE REJECTION OF CLAIMS 18 THROUGH 21  
AS ALLEGEDLY FAILING TO COMPLY WITH  
THE WRITTEN DESCRIPTION REQUIREMENT  
OF 35 U.S.C. 112, FIRST PARAGRAPH IS ERRONEOUS**

“A patent specification must contain an adequate written description.” *Pandrol v. Airboss Railway Products, Inc.*, 424 F.3d 1161, 1165 (Fed. Cir. 2005). “The purpose of the written description requirement is to prevent an applicant from later asserting that he invented that which he did not; the applicant for a patent is therefore required ‘to recount his invention in such detail that his future claims can be determined to be encompassed within his original creation.’” *Amgen Inc. v. Hoechst Marion Roussel Inc.*, 314 F.3d 1313, 1330 (Fed. Cir. 2003).

“Compliance with § 112 requires sufficient information in the specification to show that the inventor possessed the invention at the time of that original disclosure.” *Pandrol*, 424 F.3d at 1165. In evaluating whether this requirement has been fulfilled, the application’s “disclosure must allow one skilled in the art ‘to visualize or recognize the identity’ of the subject matter purportedly described.” *Regents of Univ. of Cal. V. Eli Lilly & Co.*, 119 F.3d 1559, 1573 (Fed. Cir. 1997) “*Terms need not be used in haec verba, however...Instead, we have explained that the written description requirement can be satisfied by ‘words, structures, figures, diagrams, formulas, etc.’”* *Kotto Manufacturing Co., Ltd. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1154 (Fed. Cir. 2005)(emphasis added)

When evaluated under these standards, there is no question that Claims 18 through 21 fully comply with the written description requirement.

**1. Claims 18 and 20 fully comply with 35 U.S.C. 112, first paragraph**

With regard to Claims 18 and 20, the Examiner contends that the recitations “a first transmission channel,” “a first variable frequency bandwidth,” a second transmission channel,” “a second variable frequency bandwidth,” and “to adjust a band edge of either said first transmission channel or said second transmission channel to increase or decrease said first and second variable frequency bandwidths” constitute new subject matter that was not described in the such a way as to reasonably convey to one skilled in the art that the inventor had possession of the claimed invention at the time of filing.

Appellants respectfully submit that the descriptions of the preferred embodiment in the Detailed Description of the Invention, the Claims and the drawings *as filed* is more than sufficient to establish that the inventors possessed the invention of Claims 18 and 20 at the time of filing of the subject patent application.

Appellants will first address the recitations “first transmission channel” and “second transmission channel.” Claim 1, *as originally filed*, included the recitation of “a programmable filter coupled to receive an output signal from said broadband analog front end circuit and configured to filter frequency bands of said output signal into *a plurality of separate transmission channels.*” (emphasis added) This language alone is sufficient to satisfy the written description requirement as “a plurality of separate transmission channels” necessarily requires a “first transmission channel” and a “second transmission channel.” Certainly, the original claim language of “a plurality of separate transmission channels” is sufficient to reasonably convey to one skilled in the art the inventors were in possession of the claimed invention including the recitations of a “first transmission channel” and a “second transmission channel.” Further, the “BRIEF SUMMARY OF

THE INVENTION” in the Specification as originally filed includes the statement, “In accordance with the present invention, there is provided...a programmable filter for filtering *frequency bands to separate transmission channels...*” (emphasis added) One skilled in the art would immediately recognize that “*separate transmission channels*” includes at least first and second transmission channels. Moreover, Appellants direct this Board to Figure 3, Figure 4 and Figures 6A through 6 E which in and of themselves reasonably convey to one skilled in the art at least a “first transmission channel” and a “second transmission channel.” For example, Figure 3 depicts four separate data paths 68 having different frequency bands. (See Specification, p. 4, lines 3 to 6 and lines 26 to 29)

Figures 4, 6D and 6E and the corresponding description in the Specification reasonably convey to one skilled in the art that the inventors were in possession of the claimed invention including the recitations “a first variable frequency bandwidth” and “a second variable frequency bandwidth” at the time the subject patent application was filed. Figure 4, as stated in the Specification as originally filed, “is a graph illustrating *different frequency bands with different, programmable band edges.*” (See Specification, p. 3, lines 20 and 21)(emphasis added) N variable frequency bandwidths are depicted. In fact, the arrows indicate that the frequency bandwidths for Service 1, Service 2 and Service 3 can be varied at the lower edge and the upper edge. Hence, Figure 4 is alone sufficient to reasonably convey to one skilled in the art that the inventors were in possession of the claimed invention including the recitations “a first variable frequency bandwidth” and “a second variable frequency bandwidth” at the time of filing the subject patent application.

Figures 6D and 6E illustrate further examples of multiple variable frequency bandwidths (See arrows indicating how the frequency bandwidths can be varied).

Regarding the recitation in Claims 18 and 20 of “to adjust a band edge of either said first transmission channel or said second transmission channel to increase or decrease said first and second variable frequency bandwidths,” Appellants note the following passage in the Specification as filed:

While the above only describes extending the lower edge of the ADSL upstream signal, it is further possible to move the upper band edge of the ADSL upstream signal as well as both band edges of the ADSL downstream signal. The moveable band edges are illustrated schematically in FIG. 6D. (See Specification, p. 6, lines 10 to 13)(emphasis added)

Appellants also direct the Board’s attention to the arrows in Figures 4, 6D and 6E indicating how the programmable filter can increase or decrease the band edge of multiple channels to increase or decrease the first and second variable frequency bandwidths. As such, Claims 18 and 20 fully comply with the written description requirement of 35 USC § 112, first paragraph.

## **2. Claims 19 and 21 fully comply with 35 U.S.C. 112, first paragraph**

The Examiner contends that the recitations “a third transmission channel” and “a third variable frequency bandwidth” appearing in Claims 19 and 21 constitute new subject matter that was not described in the such a way as to reasonably convey to one skilled in the art that the inventor had possession of the claimed invention at the time of filing.

Appellants respectfully submit that the descriptions of the preferred embodiment in the Detailed Description of the Invention, the Claims and the drawings *as filed* is more than sufficient to establish that the inventors possessed the invention of Claims 19 and 21 at the time of filing of the subject patent application. Specifically, Figures 4 and 6D

clearly depict at least three channels each having a variable frequency bandwidth. (See arrows indicating how frequency bandwidth can be varied) In other words, the Specification as originally filed clearly conveys to one skilled in the art that the inventors at the time of filing of the subject patent application were in possession of the claimed invention including the recitation of “a third transmission channel” and “a third variable frequency bandwidth.”

Accordingly, Appellants respectfully submit that the Examiner’s rejection of Claims 19 and 21 under 35 USC 112, first paragraph cannot be sustained.

**B. THE REJECTION OF CLAIMS 11, 13 AND 14  
AS ALLEGEDLY FAILING TO COMPLY WITH  
35 U.S.C. 112, SECOND PARAGRAPH IS ERRONEOUS**

“A claim is indefinite when it contains words or phrases whose meaning is unclear. The lack of clarity could arise where a claim refers to ‘said lever’ of ‘the lever,’ where the claim contains no earlier recitation or limitation of a lever and where it would be unclear as to what element the limitation was making reference... Obviously, however, the failure to provide explicit antecedent basis for terms does not always render a claim indefinite. If the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite.” *MPEP* § 2173.05 (e); see also *Ex parte Porter*, 25 USPQ 2d 1144, 1145 (Bd. Pat. App. & Inter. 1992).

The Examiner alleges that the phrase “POTS detector circuit” appearing in line 2 of Claim 11, line 1 of Claim 13 and line 1 of Claim 14 does not have sufficient antecedent basis. Appellants respectfully dispute this assertion. Claim 11 from which Claims 13 and 14 depend, provides ample antecedent basis. Claim 11 reads as follows:

11. The line interface of claim 10, further comprising:  
*a POTS detector circuit* coupled to provide a POTS usage  
signal to said programmable filter indicating that a POTS  
bandwidth is in use. (emphasis added)

Claim 11 unquestionably provides antecedent basis for the phrase “POTS detector circuit” as claim 11 recites that the line interface further comprises “*a POTS detector circuit.*” Even if this Board should conclude that sufficient antecedent basis does not exist, Claims 11, 13 and 14 fully comply with 35 USC § 112, second paragraph as the scope of these claims can be reasonably ascertained by those skilled in the art.

**C. THE REJECTION OF CLAIMS 1 THROUGH 11 AND 14  
THROUGH 21 UNDER 35 USC 102 (b) IS ERRONEOUS**

“Anticipation...requires that the *identical invention that is claimed* was previously known to others and thus is not new...*When more than one reference is required to establish unpatentability of the claimed invention anticipation under § 102 can not be found*, and validity is determined in terms of § 103.” *Continental Can v. Monsanto*, 948 F.2d 1264, 1267 (Fed. Cir. 1991)(emphasis added).

“A patent is invalid for anticipation *when the same device or method, having all the elements and limitations contained in the claims*, is described in a single prior art reference.” *ATD Corporation v. Lydall, Inc.*, 159 F.3d 534, 545 (Fed. Cir. 1998)(emphasis added). See also *Crown Operations International, Ltd. v. Krone*, 289 F.3d 1367, 1375 (Fed. Cir. 2002)

The single reference must have an enabling disclosure. See *Advanced Display Systems Inc. v. Kent State University*, 54 USPQ 2d 1673, 1679 (Fed. Cir. 2000)(“Accordingly, invalidity by anticipation requires that the four corners of *a single*,



*prior art document* describe every element of the claimed invention, expressly or inherently, such that *a person of ordinary skill in the art could practice the invention without undue experimentation.*”(emphasis added); See also, *PPG Industries, Inc. v. Guardian Industries Corp.*, 37 USPQ 2d 1618, 1624 (Fed. Cir. 1996)(“To anticipate a claim, a reference must disclose every element of the challenged claim and *enable one skilled in the art to make the anticipating subject matter.*”)(emphasis added)

“To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. *Such evidence must make clear that the missing descriptive matter is necessarily present* in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *Continental Can*, 948 F.2d at 1268. (emphasis added)

“*Inherency, however, may not be established by probabilities or possibilities.* The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981)(emphasis added). See also, *Continental Can*, 948 F.2d at 1269.

“[T]he initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention rests upon the examiner...In relying upon inherency, *the examiner must* provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ 2d 1461, 1464 (BPAI 1990)(emphasis in original)

Evaluated under these controlling legal standards, the rejections of Claims 1 through 11 and 14 through 21 under 35 USC § 102 based on Timm et al. cannot be sustained.

**1. Claim 1 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 1, is directed to a line interface for coupling a twisted pair telephone line with a communications network. The line interface comprises a broadband analog front end circuit coupling the twisted pair telephone line with the line interface and *a programmable filter coupled to receive an output signal from the broadband analog front end circuit and configured to filter frequency bands of the output signal into a plurality of separate, variable bandwidth transmission channels. The plurality of separate variable bandwidth transmission channels are associated with the communications network and the frequency bands and the variable bandwidths are determined by programming the programmable filter.*

Appellants' invention, as recited in Claim 1, is not anticipated by Timm et al. for at least the reason that Timm et al. fails to disclose expressly or inherently a programmable filter as set forth in Claim 1. Regarding any assertion that Timm et al. inherently discloses Appellants' invention, Appellants note that “[i]nherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Oelrich*, 666 F.2d at 581. (emphasis added) See also, *Continental Can*, 948 F.2d at 1269. “In relying upon inherency, *the examiner must* provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily*

flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ 2d at 1464(emphasis in original)

A preferred embodiment of the Appellants’ invention is depicted in Figure 3 reproduced below:

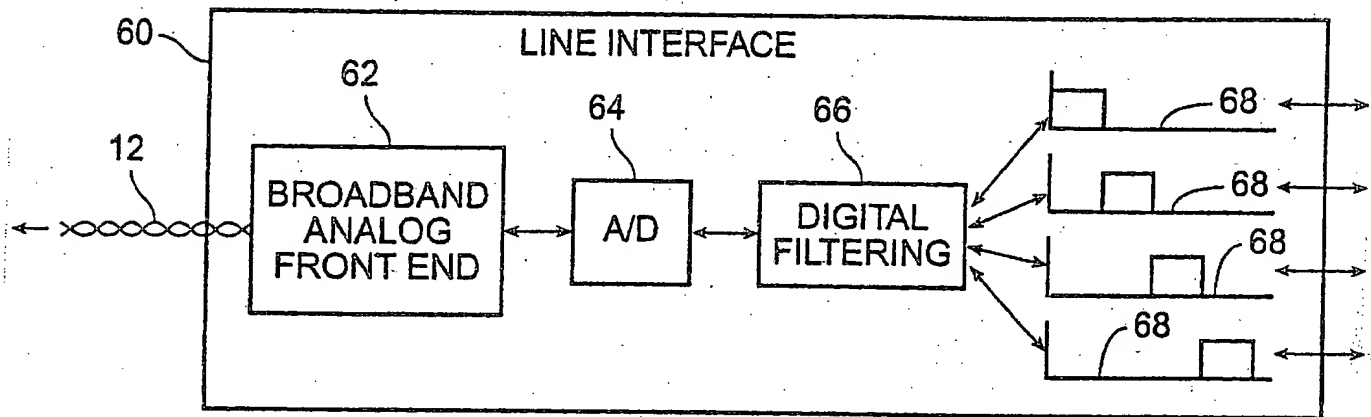
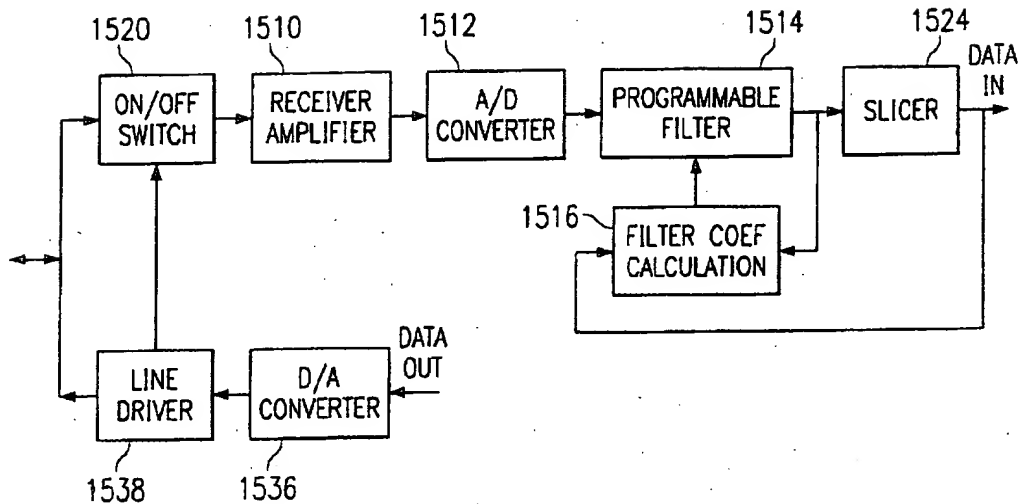


FIG. 3

As is readily evident from Figure 3, there are *a plurality of outputs* from the digital programmable filter 66 consistent with the language in Claim 1 that the programmable filter is configured to filter frequency bands of the output signal into *a plurality of separate, variable bandwidth transmission channels*. In an attempt to satisfy the programmable filter limitation of Claim 1, the Examiner relies upon the programmable filter 1514 depicted in Figure 15c reproduced below:

FIG. 15c



Notably, absent from Figure 15c is a plurality (i.e., more than one) of outputs from the programmable filter. The reason for this is simple, the programmable filter 1514 of Timm et al is not configured to filter frequency bands of the output signal into *a plurality of separate, variable bandwidth transmission channels*. Rather, the programmable filter 1514 of Timm et al. “is used to compensate the channel distortion.” (See Timm et al. col. 49, lines 9 and 10) For this reason alone, Timm et al cannot possibly anticipate Claim 1.

The Examiner’s reliance on Timm et al. at col. 6, lines 53 to 58 and col. 25, lines 16 to 67 with respect to the claim recitations “configured to filter frequency bands of said output signal into a plurality of separate, variable bandwidth transmission channels, wherein said plurality of separate, variable bandwidth transmission channels are

associated with said communications network” is misplaced. Specifically, the passages at col. 6, lines 53 to 58 and col. 25, lines 16 to 67 do not even refer to a programmable filter let alone a programmable filter “configured to filter frequency bands of said output signal into a plurality of separate, variable bandwidth transmission channels, wherein said plurality of separate, variable bandwidth transmission channels are associated with said communications network.” Notably, the Examiner has not provided any evidence or reasoning that the passages at col. 6, lines 53 to 58 and col. 25, lines 16 to 67 necessarily refer to a programmable filter and/or necessarily disclose a programmable filter configured to filter frequency bands of the output signal into a plurality of separate, variable bandwidth transmission channels. As such, the rejection of Claim 1 under 35 U.S.C. § 102 based on Timm et al cannot possibly be sustained.

Claims 2, 3 and 8 through 10 depend directly or indirectly from Claim 1 and therefore, are allowable for at least the reasons that Claim 1 is allowable.

**2. Claim 4 is not anticipated by Timm et al.**

Appellants’ invention, as recited in Claim 4, includes all of the limitations of Claim 1 and further provides that the plurality of separate, variable bandwidth transmission channels are directed to a plurality of different service providers. The Examiner relies upon Figure 14a and in particular the element “TO BACKBONE NETWORKS”) in an attempt to satisfy the recitation that the plurality of separate variable bandwidth transmission channels are directed to a plurality of different service providers. The Examiner’s reliance on this section of Timm et al is misplaced. Specifically, there is no connection between Figure 14a and Figure 15c (relied upon by the Examiner to reject Claim 1) made by Timm et al expressly or inherently. As the

controlling law establishes, anticipation requires that *a single device exactly as claimed* be disclosed in a single reference. As opposed to a single device, the Examiner is attempting to combine unrelated devices, i.e., the device in Figure 14a with the unrelated device in Figure 15c. In this regard, Appellants note that Figure 14a refers to a preferred embodiment modem pool (see col. 8, line 30) while Figure 15c relates to a conventional equalizer. Notably, the Examiner has not pointed to any passage in Timm et al that indicates Figure 14a and Figure 15c are present in the same device. Moreover, as explained in connection with Claim 1, Timm et al does not disclose a plurality of separate, variable bandwidth transmission channels let alone directing these separate variable bandwidth transmission channels to different service providers.

For at least these reasons, the rejection of Claim 4 cannot possibly be sustained.

### **3. Claim 5 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 5, includes all of the limitations of Claims 1 and 4 and further provides that the plurality of separate, variable bandwidth transmission channels comprise a plurality of signals with a plurality of different modulation schemes.

The Examiner points to Timm et al at col. 4, lines 50 to 60 in an attempt to satisfy the limitations of Claim 5. However, nowhere does the cited passage of Timm et al disclose that a plurality of separate, variable bandwidth transmission channels comprise a plurality of signals with a plurality of different modulation schemes. The cited passage of Timm et al merely recites various modulation schemes that have been used in previously developed systems. For this reason alone, Timm et al cannot anticipate Claim 5.

Further, the Examiner has failed to establish that the passage at col. 4, lines 50 to 60 and the other passages relied upon by the Examiner to satisfy the features recited in the parent claims (i.e., Claims 1 and 4) *refer to the same device*. In other words, the Examiner has not shown that Timm et al discloses a single device having all of the limitations recited in Appellants' invention. Rather, the Examiner is clearly attempting to combine various components of multiple systems in an effort to reject Appellants' invention under 35 U.S.C. § 102 contrary to the controlling case law.

**4. Claim 6 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 6, includes all of the limitation of Claim 1 and further provides that the programmable filter is programmed with software.

The Examiner relies upon col. 7, lines 62 to 63 in an attempt to satisfy the limitations of Claim 6. Nowhere does this passage disclose expressly or inherently that a programmable filter of the type claimed is programmed with software.

Further, the Examiner has failed to establish the passage at col. 7, lines 62 to 63 and the other passages relied upon by the Examiner to satisfy the features recited in the parent claim (i.e., Claim 1) *refer to the same device*. Rather, the Examiner is again attempting to combine various components of multiple systems in an effort to reject Appellants' invention under 35 U.S.C. § 102 contrary to the controlling case law.

**5. Claim 7 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 7, includes all of the limitations of Claims 1 and 6 and further provides that the software is downloaded to the programmable filter.

The Examiner relies upon col. 9, lines 1 to 4 and lines 25 to 37 in an attempt to satisfy the limitations of Claim 6. However, the Examiner's reliance on the cited passages are misplaced as these passages do not even refer to a programmable filter let alone downloading software to a programmable filter of the type claimed by Appellants.

Further, the Examiner has failed to establish that the various sections relied upon in Timm et al to reject Claim 7 as well as the parent claims (i.e., Claims 1 and 6) refer to a single device. This the Examiner must do to make out a prima facie case of anticipation. Accordingly, the Examiner's rejection of Claim 7 cannot be sustained.

**6. Claim 11 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 11, includes all of the limitations of Claims 1 and 8 to 10 and further defines the line interface to include a POTS detector circuit coupled to provide a POTS usage signal to the programmable filter indicating that a POTS bandwidth is in use.

Nowhere does Timm et al disclose, expressly or inherently, Appellants' invention as recited in Claim 11. The Examiner's citations to Timm et al at Fig. 1b (element "telephone interface"), col. 8, lines 62 to 67 and col. 9, lines 34 to 42 are insufficient as these sections fail to even mention a programmable filter let alone a POTS detector circuit coupled to provide a POTS usage signal to the programmable filter indicating a POTS bandwidth is in use.

Further, the Examiner has failed to establish that the various sections relied upon in Timm et al to reject Claim 11 as well as the parent claims (i.e., Claims 1, 8, 9 and 10) refer to a single device. This the Examiner must do to make out a prima facie case of anticipation. Hence, the rejection of Claim 11 cannot be sustained.



Claim 14 depends from Claim 11 and, therefore, is allowable for at least the reasons that Claim 11 is allowable.

**7. Claim 15 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 15, is directed to a method of providing a plurality of services over a twisted pair telephone line, comprising the acts of: receiving a broadband analog signal from the twisted pair telephone line; *filtering the broadband analog signal using a programmable filter into a plurality of separate bands wherein the plurality of separate bands are determined by programming the filter to generate a plurality of variable bandwidth channels; and transmitting the plurality of separate bands to a plurality of different service providers.*

In rejecting Claim 15 as allegedly being anticipated by Timm et al, the Examiner has relied upon the following passages of Timm et al.: (i) col. 6, lines 5 to 10; (ii) col. 11, lines 8 to 16; (iii) col. 10, lines 27 to 30, lines 42 to 44 and lines 54 to 61; (iv) Fig. 15c; (vi) col. 6, lines 53 to 58; (vii) col. 25, lines 16 to 67; (viii) Fig. 2d, elements 2002 and 2004; (ix) Fig. 14a, element backbone networks; and, (x) col. 11, lines 9 to 14.

The Examiner's rejection cannot be sustained because the Examiner has failed to establish that each of the passages he relies upon in Timm et al refer to *a single method* as required for anticipation. As explained in connection with Claim 4, Figure 15c and Figure 14a do not even relate to the same device let alone the same method. Accordingly, the Examiner cannot establish that *a single method* of Timm et al includes all of the limitations of Appellants' method recited in Claim 15. For this reason alone, the Examiner's rejection of Claim 15 cannot be sustained.

The Examiner's rejection of Claim 15 must also fail as Timm et al does not disclose, expressly or inherently, inter alia, the claimed step of filtering the broadband analog signal using a programmable filter into a plurality of separate bands wherein the plurality of separate bands are determined by programming the filter to generate a plurality of variable bandwidth channels. The Examiner again attempts to rely upon the programmable filter 1514 in Figure 15c of Timm et al. However, the programmable filter 1514 of Timm et al does not filter the broadband analog signal into *a plurality of separate bands wherein the plurality of bands are determined by programming the filter to generate a plurality of variable bandwidth channels*. In fact, as is readily evident from Figure 15c, Timm et al discloses *only a single output from filter 1514*. This single output of filter 1514 is consistent with its function, i.e., *to compensate for distortion of a single channel*. (See Timm et al, co. 49, lines 9 and 10) The Examiner's additional reliance on Timm et al. at col. 6, lines 53 to 58 and col. 25, lines 16 to 67 is also unavailing. Specifically, the passages at col. 6, lines 53 to 58 and col. 25, lines 16 to 67 do not even refer to a programmable filter let alone the claimed filtering step using a programmable filter. Notably, the Examiner has not provided any evidence or reasoning that the passages at col. 6, lines 53 to 58 and col. 25, lines 16 to 67 necessarily refer to a programmable filter and/or necessarily disclose the claimed filtering step using a programmable filter. As such, the rejection of Claim 15 under 35 U.S.C. § 102 based on Timm et al cannot possibly be sustained.

Claim 16 depends from Claim 15 and, therefore, is allowable for at the reasons that Claim 15 is allowable.

**8. Claim 17 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 17, includes all of the steps of Claim 15 and further provides that the programmable filter is upgraded by programming the filter with software.

In an attempt to satisfy the additional step set forth in Claim 17, the examiner points to Timm et al at col. 9, lines 1 to 4 and col. 45, lines 13 to 25. However, these passages never refer to a programmable filter let alone upgrading a programmable filter using software. Accordingly, the rejection of Claim 17 cannot be sustained.

**9. Claim 18 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 18, is directed to a line interface for coupling a twisted pair telephone line with a communications network. The line interface includes a broadband analog front end circuit coupling the twisted pair telephone line with the line interface and a *programmable filter* coupled to receive an output signal from the broadband analog front end circuit *and configured to filter frequency bands of the output signal into a plurality of different transmission channels. The plurality of different transmission channels include a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth wherein the programmable filter can be programmed to adjust a band edge of either the first transmission channel or the second transmission channel to increase or decrease the first and second variable frequency bandwidths, respectively.*

Timm et al fails to disclose expressly or inherently at least the programmable filter coupled to receive an output signal from the broadband analog front end circuit and configured to filter frequency bands of the output signal into a plurality of different

transmission channels including a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth wherein the programmable filter can be programmed to adjust a band edge of either the first transmission channel or the second transmission channel to increase or decrease the first and second variable frequency bandwidths, respectively. The Examiner attempts to rely upon the programmable filter 1514 in Figure 15c of Timm et al to satisfy the programmable filter configured as claimed by Appellants. However, the programmable filter 1514 of Timm et al does not filter the output signal from the broadband analog front end circuit into *a plurality of different transmission channels including a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth*. On the contrary, Timm et al discloses *only a single output from filter 1514*. This single output of filter 1514 is consistent with its function, i.e., *to compensate for distortion of a single channel*. (See Timm et al, co. 49, lines 9 and 10) The Examiner's additional reliance on Timm et al. at col. 6, lines 53 to 58; col. 25, lines 16 to 67; col. 19, lines 62 to 67; and col. 20, lines 2 to 11 is also unavailing as these passages do not even refer to a programmable filter let alone a programmable filter configured as claimed. Notably, the Examiner has not provided any evidence or reasoning that any of these passages at col. 6, lines 53 to 58 and col. 25, lines 16 to 67 necessarily refer to a programmable filter.

The Examiner's further reliance on Timm et al at col. 49, lines 9 and 10 is misplaced as this passage makes clear that programmable filter 1514 compensates for distortion of a single channel unlike Appellants' claimed invention where the

programmable filter is configured to filter an output signal into a plurality of different transmission channels.

For at least the above reasons, the rejection of Claim 18 cannot be sustained.

Claim 19 depends from Claim 18 and, therefore, is allowable for at least the reasons Claim 18 is allowable.

**10. Claim 20 is not anticipated by Timm et al.**

Appellants' invention, as recited in Claim 20, is directed to a method of providing a plurality of services over a twisted pair telephone line. The method includes the steps of: receiving a broadband analog signal from the twisted pair telephone line; *filtering the broadband analog signal using a programmable filter into a plurality of separate frequency bands including a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth; programming the programmable filter to adjust a band edge of either the first transmission channel or the second transmission channel to increase or decrease the first and second variable frequency bandwidths, respectively; and, transmitting the first and second transmission channels to different service providers.*

Timm et al does not anticipate Claim 20 as it does not disclose the filtering step, the programming step or the transmitting step. As explained previously, the programmable filter of Timm et al does not filter a broadband analog signal into a plurality of separate frequency bands including a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth. This material deficiency of Timm et al is readily evident from Figure 15c depicting *a single output from filter 1514*. This material deficiency is

further supported by col. 49, lines 9 to 10 of Timm et al expressly stating that filter 1514 compensates for distortion of *a single channel*. Because filter 1514 does not filter a signal into a first transmission channel and a second transmission channel it is no surprise that Timm et al does not teach programming the filter 1514 to adjust the band edge of either the first transmission channel or the second transmission channel. Claim 20 also includes the step of transmitting the first and second transmission channels to different service providers. The Examiner does not address this aspect of Claim 20 in his rejection of this claim. Rather, the Examiner merely aggregated Claim 20 with his rejection of Claim 18. However, it is believed that the Examiner would rely upon Figure 14a in an attempt to satisfy this limitation. However, there is no express or inherent teaching in Timm et al that Figure 15c and Figure 14a form a part of the same device. Rather, the devices in Figure 15c and 14a are unrelated as previously explained.

**11. Claim 21 is not anticipated by Timm et al**

Claim 21 depends from Claim 20 and recites that the step of filtering further includes filtering the broadband signal to include a third transmission channel having a third variable frequency bandwidth.

As explained in connection with Claim 20, Timm et al does not even disclose filtering a signal into a first transmission channel and a second transmission channel using a programmable filter. As such, it clearly does not anticipate Claim 21 requiring a filtering step that generates three transmission channels.

**D. THE REJECTION OF CLAIMS 12 AND 13  
UNDER 35 USC 103 IS ERRONEOUS**

Obviousness, ultimately, is a determination of law based on underlying determinations of fact. Monarch Knitting Machinery Corp. v. Sulzer Morat GmbH, 139 F.3d 877, 881 (Fed. Cir. 1998) "These underlying factual determinations include (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and, (4) the extent of any proffered objective indicia of non-obviousness." Id.

"During examination, *the examiner bears the initial burden of establishing a prima facie case of obviousness...* The prima facie case is a procedural tool, and requires the examiner *to initially produce evidence to support a ruling of obviousness.* In re Kumar, 418 F.3d 1361, 1366, 76 USPQ 1048 (Fed. Cir. 2005)(emphasis added).

The invention must be considered as a whole without the benefit of hindsight, and the claims must be considered in their entirety. Rockwell International Corp. v. United States, 147 F.3d 1358, 1364 (Fed. Cir. 1998)

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fine, 837 F.2d 1071, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988). It is impermissible to use the claimed invention as a blueprint from which to reconstruct the prior art to satisfy the claimed invention. Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 227 USPQ 543, 548 (Fed. Cir. 1985) ("From its discussion of the prior art it appears to us that the court, guided by the defendants, treated each reference as teaching *one* or more of the specific components for use in the Feil system, although the Feil system did not then exist. Thus the court

reconstructed the Feil system, using the blueprint of the Feil claims. As is well established, this is legal error.")

The prior art must be considered as a whole and suggest the desirability and thus the obviousness of making the combination. Lindermann Maschinefabrik Gmbh v. American Hoist and Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)

*There must be a suggestion or motivation in the prior art to modify a reference to satisfy the claimed invention. In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

*"The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification."*  
*Id.* (emphasis added)

"When an obviousness determination is based on multiple references, there must be a showing of some 'teaching, suggestion, or reason' to combine the references...Although a reference need not expressly teach that the disclosure contained therein should be combined with another the showing of combinability, in whatever form, must be 'clear and particular.'" Winner International Royalty Corp. v. Wang, 202 F.3d 1340, 1348-1349 (Fed. Cir.), cert. denied, 530 U.S. 1238 (2000)(emphasis added)

"The factual inquiry whether to combine references must be thorough and searching'...*It must be based on objective evidence of record.* This precedent has been reinforced in myriad decisions and cannot be dispensed with...The need for specificity pervades this authority...This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority...'Common knowledge and common sense,' even if assumed to derive from the agency's expertise, do



*not substitute for authority when the law requires authority.*" In re Lee, 277 F.3d 1338, 1343-1345 (Fed. Cir. 2002)

*"There is no suggestion to combine, however, if a reference teaches away from its combination with another source."* Tech Air, Inc., 192 F.3d at 1360 (emphasis added). See also Winner International Royalty Corp., 202 F.3d at 1349-1350 ("Second, if Johnson did in fact teach away from Moore, then that finding alone can defeat Wang's obviousness claim.")

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference would be discouraged from following the path set *out* in the reference, *or* would be led in a direction divergent from the path taken by the applicant... [ *or*] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by applicant." In re Gurley, 27 F. 3d 551, 553, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994) and Tech Air, Inc. v. Denso Mfg. Michigan Inc., 192 F.3d 1353, 1360 (Fed. Cir. 1999).

**1. Claim 12 is not rendered obvious by the combination of Timm et al. and Bremer et al.**

Appellants respectfully submit that the Examiner's proposed combination is impermissible as there is no teaching, suggestion or motivation to combine the references. Rather, the proposed combination can only be made through the use of impermissible hindsight reconstruction. Further, the Examiner's proposed combination can not be made since Bremer et al. expressly teaches away from Appellants' invention in at least two respects: (i) Bremer et al teaches away from a combination with Timm et al.; and, (ii) the teachings of Bremer et al would lead one of ordinary skill in the art in a direction divergent from the path taken by Appellants.

In this regard, the Board's attention is directed to the following passages in Bremer et al:

While the high speeds of RADSL modems seem to be quite desirable, their use of high frequencies means that they also need to be protected from high frequency noise, such as *cross talk from adjacent channels or adjacent loops* in the loop cable binder, as such noise causes them to downwardly adjust their operating speeds. *In order to avoid certain types of noise, RADSL modems typically require the use of filters, called POTS filters, together with splitters for isolating Public Switched Telephone Network ("PSTN") equipment from the RADSL modems. Indeed, without POTS filters and POTS splitters. POTS signals directly interfere with the RADSL spectrum below about 20 kilohertz and the RADSL spectrum directly interferes with the POTS. POTS filters and POTS splitters reduce POTS signaling transients from interfering with RADSL data transmission. In addition, the use of the high RADSL bandwidth demands relatively high transmit power, which cause distortions and dynamic range overload to POTS equipment.* (See Bremer et al, col. 1, line 52 to col. 2, line 2)

*Unfortunately, the manufacture and installation of POTS filters and splitters are expensive, and their use sometimes requires rewiring of the customer premises to ensure that all PSTN equipment is properly isolated from the RADSL modems and computing equipment. Consequently, it would be desirable to avoid the use of splitters and filters, in order to avoid the expense they impose (e.g., purchase cost and possible rewiring of customer premises).* (See Bremer et al, col. 2, lines 3 to 10)

\*\*\*\*                      \*\*\*\*                      \*\*\*\*                      \*\*\*\*                      \*\*\*\*

*It is particularly desirable to have such a modem that does not require the use of costly POTS filters and splitters.* (See Bremer et al, col. 2, lines 31 to 33)

Bremer et al, in the above passages, recognizes the prior art practice of using filters and splitters to compensate for channel distortion and expressly teaches against their use due to the disadvantages associated therewith. Timm et al. teaches the exact opposite, i.e.,

Timm et al teaches using a single output programmable filter 1514 with adjustable coefficients 1516 to compensate for channel distortion. (See Timm et al, col. 49, lines 9 and 10, “[a] programmable filter 1514 with adjustable coefficients 1516 is used to compensate the channel distortion.”) There is no question that Bremer et al. teaches away from its combination with Timm et al as Bremer et al teaches the exact opposite of Timm et al. For this reason alone, the proposed combination is legally impermissible.

Further, Claim 12 of Appellants’ invention expressly requires a programmable filter whereas Bremer et al expressly teaches not using filters to avoid the disadvantages associated therewith. Accordingly, one of ordinary skill in the art would unquestionably be led away from the claimed invention in view of the express and repeated teachings of Bremer et al to avoid the use of filters.

Notably, the Examiner has not addressed these express teachings away of Bremer et al let alone explained why one of ordinary skill in the art would disregard the same and combine the references in an attempt to achieve the claimed invention.

Even if combined, the Examiner’s proposed combination does not render Appellants’ claimed invention obvious. Specifically, the combination fails to teach or suggest a number of features of Appellants’ invention including but not limited to a programmable filter coupled to receive an output signal from the broadband analog front end circuit and configured to filter frequency bands of the output signal into a plurality of separate, variable bandwidth transmission channels and/or a POTS detector circuit coupled to provide a POTS usage signal to the programmable filter indicating that a POTS bandwidth is in use.

Appellants respectfully submit that the rejection of Claim 12 cannot be sustained for at least the above stated reasons.

**2. Claim 13 is not rendered obvious by the combination of Timm et al. and Bremer et al.**

Appellants respectfully submit that the Examiner's proposed combination of Timm et al and Bremer et al is impermissible for at least the reasons stated in connection with Claim 12.

Further, even if combined, the combination does not render Appellants' claimed invention obvious as the combination fails to teach or suggest a number of features of Appellants' invention including but not limited to a programmable filter coupled to receive an output signal from the broadband analog front end circuit and configured to filter frequency bands of the output signal into a plurality of separate, variable bandwidth transmission channels and/or a POTS detector circuit coupled to provide a POTS usage signal to the programmable filter indicating that a POTS bandwidth is in use.

Appellants respectfully submit that the rejection of Claim 13 cannot be sustained for at least these reasons.

**E. CONCLUSION**


When evaluated under the controlling legal standards, the Examiner's rejections of Claims 1 through 21 cannot be sustained. Hence, Appellants respectfully request that all grounds of rejection be reversed.

A check in the amount of \$500.00 is attached hereto to satisfy the government fee for filing the subject appeal brief. It is believed that no additional fees are due. However, should that determination be incorrect, the Commissioner is hereby authorized to charge

any deficiencies to Deposit Account No. 50-0562 and notify the undersigned in due course.

Date: 12/21/05

Respectfully submitted,

  
James J. Merek  
Attorney for Appellants  
Reg. No. 32,158

MEREK, BLACKMON & VOORHEES, LLC  
673 South Washington Street  
Alexandria, Virginia 22314  
(703) 684-5633

## **VIII. CLAIMS APPENDIX**

1. A line interface for coupling a twisted pair telephone line with a communications network, comprising:

a broadband analog front end circuit coupling said twisted pair telephone line with said line interface; and

a programmable filter coupled to receive an output signal from said broadband analog front end circuit and configured to filter frequency bands of said output signal into a plurality of separate, variable bandwidth transmission channels, wherein said plurality of separate variable bandwidth transmission channels are associated with said communications network, and wherein said frequency bands and said variable bandwidths are determined by programming said programmable filter.

2. The line interface of claim 1, wherein said communications network comprises a data network and a voice network.

3. The line interface of claim 1, further comprising:

an analog to digital converter circuit, coupled between said broadband analog front end circuit and said programmable filter, configured to convert said output signal to a digital signal, wherein said programmable filter is a digital programmable filter.

4. The line interface of claim 1, wherein said plurality of separate transmission channels are directed to a plurality of different service providers.

5. The line interface of claim 4, wherein said plurality of separate transmission channels comprise a plurality of signals with a plurality of different modulation schemes.

6. The line interface of claim 1, wherein said programmable filter is programmed with software.

7. The line interface of claim 6, wherein said software is downloaded to said programmable filter.

8. The line interface of claim 1, wherein said plurality of separate frequency bands are determined according to a protocol including at least one of POTS, ISDN, ADSL, VDSL, SDSL, IDSL, HDSL, and HDSL2.

9. The line interface of claim 8, wherein said ADSL is one of full rate ADSL, G.Lite, CAP, and QAM.

10. The line interface of claim 9, wherein said ADSL and said POTS coexist on said twisted pair telephone line.

11. The line interface of claim 10, further comprising: a POTS detector circuit coupled to provide a POTS usage signal to said programmable filter indicating that a POTS bandwidth is in use.

12. The line interface of claim 11, wherein an ADSL bandwidth is expanded to include said POTS bandwidth when said POTS usage signal indicates that said POTS bandwidth is not in use, and said ADSL bandwidth is reduced to exclude said POTS bandwidth when said POTS usage signal indicates that said POTS bandwidth is in use.

13. The line interface of claim 11, wherein said POTS detector circuit detects whether a telephone connected to said twisted pair telephone wire is on hook or off hook.

14. The line interface of claim 11, wherein said POTS detector circuit determines if a POTS signal is communicated in said ADSL bandwidth or if said POTS signal is communicated in said POTS bandwidth.

15. A method of providing a plurality of services over a twisted pair telephone line, comprising the acts of:

receiving a broadband analog signal from said twisted pair telephone line;  
filtering said broadband analog signal using a programmable filter into a plurality of separate bands wherein said plurality of separate bands are determined by programming said filter to generate a plurality of variable bandwidth channels; and  
transmitting said plurality of separate bands to a plurality of different service providers.

16. The method of claim 15, wherein said separate bands are transmitted to said plurality of different service providers through a data network and a voice network.

17. The method of claim 15, wherein said programmable filter is upgraded by programming said filter with software.

18. A line interface for coupling a twisted pair telephone line with a communications network, comprising:

a broadband analog front end circuit coupling said twisted pair telephone line with said line interface; and

a programmable filter coupled to receive an output signal from said broadband analog front end circuit and configured to filter frequency bands of said output signal into a plurality of different transmission channels including:

a first transmission channel having a first variable frequency bandwidth;

and

a second transmission channel having a second variable frequency bandwidth,



wherein said programmable filter can be programmed to adjust a band edge of either said first transmission channel or said second transmission channel to increase or decrease said first and second variable frequency bandwidths, respectively.

19. The line interface of claim 18, further comprising:  
a third transmission channel having a third variable frequency bandwidth.

20. A method of providing a plurality of services over a twisted pair telephone line, comprising the steps of:

receiving a broadband analog signal from said twisted pair telephone line:

filtering said broadband analog signal using a programmable filter into a plurality of separate frequency bands including a first transmission channel having a first variable frequency bandwidth and a second transmission channel having a second variable frequency bandwidth;

programming said first programmable filter to adjust a band edge of either said first transmission channel or said second transmission channel to increase or decrease said first and second variable frequency bandwidths, respectively; and

transmitting said first and second transmission channels to different service providers.

21. The method of claim 20, wherein said step of filtering further comprises the step of:

filtering broadband analog signal to further include a third transmission channel having a third variable frequency bandwidth.

**IX. EVIDENCE APPENDIX**

None.

X. **RELATED PROCEEDINGS APPENDIX**

None.